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Goddard Space Flight Center
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Scientific "Fireworks Display" Set for East Coast in July

NASA will set off its own Independence Day fireworks during a series of nighttime rocket launches from July 2 to 20, 1999. Designed to study "space weather" -- the interaction of the solar wind with the Earth's magnetic field and atmosphere -- the experiments will focus on improving our understanding of electrically charged atoms at the edge of space.

During the 19-day period, two suborbital rockets will be launched on each of two nights between 9:30 p.m. and 4 a.m. from the NASA Goddard Space Flight Center's Wallops Flight Facility, Wallops Island, Va.

Two of the experiment packages will release a chemical that will form large glowing clouds in space. These luminescent milky-white clouds should be visible to the naked eye for several hundred miles from the launch site, encompassing the mid-Atlantic region and portions of the northeastern and southeastern United States. The clouds should be visible for 10 to 20 minutes to the southeast of the launch site at about 70 degrees elevation (approximately three-quarters of the way between the horizon and the point of the sky that appears to be directly above an observer).

The chemical, trimethylaluminum, will be released in the ionosphere between 43 and 96 miles (69 to 154 kilometers) altitude. The harmless by-products will disperse across thousands of miles as they diffuse into the upper atmosphere.

The experiments will take place in a region above the Earth that at first appears to be empty and very quiet. In fact, the Earth's upper atmosphere actually is bustling with activity. Here the solar

wind (a fast-moving stream of particles emanating from the Sun), the Sun's magnetic field and Earth's magnetic field and atmosphere come together. Their interactions can create disturbances just above Earth's lower atmosphere.

These disruptions can affect radio, television and satellite communications. By better understanding these interactions in the ionosphere, scientists hope to gain information that will ultimately help improve the reliability of radio and satellite communications.

The specific aim of these experiments is to explore metallic ion layers (regions of electrically charged particles) that exist about 60 miles altitude (100 kilometers) above the Earth and to understand how their interactions with wind in the upper atmosphere create large electric fields and turbulence. The metallic ion layers are formed by material from meteors that have collided with the Earth's upper atmosphere.

Each mission will consist of a one-stage Black Brant V and a two-stage Taurus-Orion rocket. The Black Brant V, which will carry instruments only, will be launched first. The Taurus-Orion, carrying the chemical package, will be launched approximately three minutes later.

The status of the launches can be found by calling the Wallops Flight Facility launch status line at (757) 824-2050 or on the Wallops web page at:

<http://www.wff.nasa.gov>

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